

Abstract of the disclosure

The invention provides an ultra-sonic jet multi-photon resonance ionization type mass analyzing device.

The laser beam ionization mass analyzing device includes a pulsed gas ejecting device 12 for ejecting in pulse mode carrier gas containing sample molecules into a vacuum vessel 17, a laser beam irradiation system for irradiating laser beam for selective photo-reaction of sample molecules in said pulsed gas, repeller and extraction electrodes 18 and 19 generating an electric field for extraction of sample molecular ions generated by the photo reaction and a mass analyzing device 26 for mass analysis of extracted sample molecular ions. The laser beam irradiation system is set to irradiate laser beam to sample molecules near a position whereat a pressure time distribution of pulsed gas translating in the vacuum vessel 17 transitions from a flat-top pressure distribution to a triangular pressure distribution.